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Clark R. Baker JR.

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EXAMINER

RAMIREZ, JOHN FERNANDO

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/796,584
Filing Date: March 08, 2004
Appellant(s): BAKER, CLARK R.

W. Allen Powell
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed on September 28, 2010 appealing from the Office action mailed July 9, 2010.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

Claims 1-27 are currently pending.

Claims 1-4, 6-16, and 18-22 are currently rejected.

Claims 5 and 17 include allowable subject matter, and

Claims 23-27 are withdrawn.

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office

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action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

Masimo, Technical Bulletin 1, "Discrete Saturation Transform" (2006), pages 4-5

5,662,106	Swedlow et al.	09-1997
2003/0036689	Diab et al.	02-2003

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 6-16, 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Diab et al. (US 2003/0036689) in view of Swedlow et al. (US 5,662,106) and further in view of non-patent literature "*Masimo Signal Extraction Pulse Oximetry*".

With respect to claims 1-4, 6-16, 18-22, the Diab et al. patent teaches a system for detecting the presence of mixed venous and arterial blood pulsation in tissue, (abstract, paragraph 0019), obtaining a measure of a phase difference between said first and second electromagnetic radiation signals (paragraphs 0389-0391, fig. 25B, elements 694,692, 690), comparing said measure with a threshold value to form a comparison (paragraph 0387, fig. 25B, elements 660, 662,696); and detecting the presence or absence of venous pulsation using said comparison (paragraphs 0019, 0368). (NOTE: it is well known in the art that the primary cause of noise in transmissive pulse oximetry measurements is motion artifact caused by the movement of venous blood in the finger. See technical paper, "Masimo Signal Extraction Pulse Oximetry" (1999-2000), abstract, pages 476-477, 479-481 see sections: Effect of motion on pulse oximetry, Accurate saturation measurement during motion, The Masimo pulse oximetry model, In vivo example of the effects of motion on CPO and Masimo SET pulse oximetry, also see description of figs. 6 and 7).

Diab et al. do not disclose indicating the presence of venous pulsation to a caregiver if venous pulsation is present. However, the Swedlow et al. patent teaches an indication of the presence of venous pulsation to a caregiver if venous pulsation is present (see abstract, fig. 1, element 30, and figure 4, col. 5, line 64 - col. 6, line 34).

It would have been obvious for a person of ordinary skill in the art, to modify the system disclosed by Diab et al., with the above discussed enhancements because such modification would provide a more accurate blood oxygen and pulse readings.

With respect to claims 2 and 14, Diab et al. discloses filtering the electromagnetic radiation signals to pass signals having frequencies at or near the pulse rate or harmonics (pars. 0329, 0385).

With respect to claims 3-4 and 15-16, Diab et al. illustrates in figures 26-30 the measurement of both signals red and infrared, in which each of the signals is relatively undisturbed by motion artifact over a time period (pars. 0411-0414).

With respect to claims 6 and 18, Diab et al. discloses a method for analyzing and correlating the measured signals (pars. 0014).

With respect to claims 7 and 19, Diab et al. discloses a frequency domain analysis and subtraction of the signals (pars. 0032, 0082, 0090, and 0402).

With respect to claims 8 and 20, the subtracting step by taking the complex conjugate of the signals and dividing it by the product of the magnitudes of the signals, it would have been an obvious design choice for one of ordinary skill in the art.

With respect to claims 9-11 and 21, Diab et al. discloses obtaining the measurement of the signals at or near a fundamental (first harmonic) or a harmonic of a pulse rate (pars. 0329, 0385, and 0400).

Allowable Subject Matter

Claims 5 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

(10) Response to Argument

Applicant's arguments have been fully considered, but are deemed not persuasive.

In relation to appellant's argument that the Diab et al. reference does not disclose detecting the presence of venous pulsation. The examiner of record notes that the Diab et al. reference in Figure 25B and in paragraphs 0389-0396 of the specifications discloses calculating the phase differences between the red and infrared signals and compares it with a threshold value to detect the presence of venous blood pulsation.

In relation to appellant's argument that the rejection of dependent claims 2-4, 6-12, 14-16 and 18-22 is in error. The examiner of record respectfully disagrees with appellant's comments and maintains the rejection of the claims as noted below.

With respect to claims 2 and 14, Diab et al. discloses filtering the electromagnetic radiation signals to pass signals having frequencies at or near the pulse rate or harmonics (pars. 0329, 0385).

With respect to claims 3-4 and 15-16, Diab et al. illustrates in figures 26-30 the measurement of both signals red and infrared, in which each of the signals is relatively undisturbed by motion artifact over a time period (pars. 0411-0414).

With respect to claims 6 and 18, Diab et al. discloses a method for analyzing and correlating the measured signals (pars. 0014).

With respect to claims 7 and 19, Diab et al. discloses a frequency domain analysis and subtraction of the signals (pars. 0032, 0082, 0090, and 0402).

With respect to claims 8 and 20, the subtracting step by taking the complex conjugate of the signals and dividing it by the product of the magnitudes of the signals, it would have been an obvious design choice for one of ordinary skill in the art.

With respect to claims 9-11 and 21, Diab et al. discloses obtaining the measurement of the signals at or near a fundamental (first harmonic) or a harmonic of a pulse rate (pars. 0329, 0385, and 0400).

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/John F Ramirez/

Examiner, Art Unit 3777

/Tse Chen/

Supervisory Patent Examiner, Art Unit 3777

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